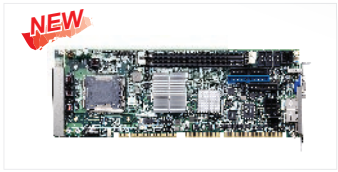
Selection Guide

Single Board Computers

PICMG 1.3 SBC

PICMG 1.0 SBC



Model Name		NuPRO-E320	NuPRO-965	NuPRO-935A
CPU	Socket	LGA775	LGA775	LGA775
	CPU Support	Intel® Core™2 Quad/Duo	Intel® Core™2 Duo	Intel® Core™2 Quad/Duo
	FSB	1333/1066/800 MHz	1066/800/533 MHz	1333/1066/800 MHz
Chipset	Northbridge	Q45	Q965	Q35
	Southbridge	ICH10	ICH8	ICH9
Memory	DIMM Type	DDR3	DDR2	DDR2
	Speed	800/1066 MHz	800/667/533 MHz	800/667 MHz
	DIMM	2	4	2
	Max. Capacity	8 GB	8 GB	4 GB
	ECC/Reg.	--	--	--
Form Factor	Dimensions	338 mm x 122 mm	338 mm x 122 mm	338 mm x 122 mm
	Bus	PCI Express® / PCI™	PCI Express® / PCI™	PCI™ / ISA
Display	Graphics Core	Intel® GMA 4500	Intel® GMA 3000	Intel® GMA 3100
	Graphics I/F	integrated	integrated	integrated
	Video Memory	DVMT 512 MB	DVMT 256 MB	DVMT 256 MB
	LVDS Support	--	--	--
Ethernet	Gigabit	2	2	2
	10/100	0	0	0
	Controller	Intel® 82574L	Intel® 82573E	Intel® 82566DM and Intel® 82573L
Storage	Serial ATA	2x SATA 300	2 x SATA 300	2x SATA 300
	IDE	1x ATA133	1 x ATA133	1x ATA133
	CompactFlash	--	--	--
	Floppy	Yes	--	Yes
I/O Ports	USB	9x USB 2.0	7x USB 2.0	5x USB 2.0
	LPT	Yes	Yes	Yes
	COM	1x RS-232, 1x RS-232/422/485	2x RS-232	1x RS-232, 1 x RS232/422/485
	PS/2 KB/MS	Yes (MiniDIN)	Yes (MiniDIN)	Yes (MiniDIN)
	Audio	optional audio board	optional audio board	optional audio board
Expansion Slots		--	--	
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Notes				

PICMG 1.0 SBC

Model Name		NuPRO-730	NuPRO-A301	NuPRO-720
CPU	Socket	Socket P	LGA775	Onboard
	CPU Support	Intel® Core™2 Duo Mobile/Celeron	Intel® Core™2 Duo	Geode™ AMD LX 800, 500 MHz
	FSB	800/533 MHz	800 MHz	--
Chipset	Northbridge	GME965	945GC	CS5536 (Companion Device)
	Southbridge	ICH8M	ICH7	--
Memory	DIMM Type	DDR2	DDR2	DDR
	Speed	667 MHz	533 MHz	400 MHz
	DIMM	2	2	2
	Max. Capacity	4 GB	4GB	2 GB
	ECC/Reg.	--	--	--
Form Factor	Dimensions	338 mm x 122 mm	338 mm x 122 mm	338 mm x 122 mm
	Bus	PCI™ / ISA	PCI™ / ISA	PCI™ / ISA
Display	Graphics Core	Intel® GMA X3100	Intel® GMA 950	Integrated in AMD Geode LX800
	Graphics I/F	integrated	integrated	integrated
	Video Memory	DVMT 384 MB	DVMT 192 MB	16 MB (Shared)
	LVDS Support	Single Channel 24-bit LVDS	--	--
Ethernet	Gigabit	2	1	0
	10/100	0	0	2
	Controller	Intel® 82573L	Intel® 82574L	Intel® 82551ER
Storage	Serial ATA	2 x SATA 300	4 x SATA 300	2 x SATA 150
	IDE	1x ATA133	1 x ATA133	1 x ATA133
	CompactFlash	Yes	--	Yes
	Floppy	Yes	Yes	--
I/O Ports	USB	5 x USB 2.0	4 x USB 2.0	4 x USB 2.0
	LPT	Yes	Yes	Yes
	COM	1 x RS-232, 1 x RS-232/422/485	1 x RS-232, 1 x RS-232/422/485	1 x RS-232, 1 x RS-232/422/485
	PS/2 KB/MS	Yes (MiniDIN)	Yes (MiniDIN)	Yes (MiniDIN)
	Audio	optional audio board	optional audio cable	optional audio board
Expansion Slots		--	--	--
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Notes				

PICMG 1.0 SBC

NuPRO-852	NuPRO-841
LGA 775	Socket 478
Intel® Core™2 Duo	Pentium® 4
1066/800/533 MHz	533/400 MHz
Q965/Q963	845GV
ICH8	ICH4
DDR2	DDR
667/533 MHz	333/266 MHz
2	2
4 GB	2 GB
--	--
338 mm x 122 mm	338 mm x 122 mm
PCI™ / ISA	PCI™ / ISA
Intel® GMA 3000	Intel® Extreme Graphics
integrated	Embedded
DVMT 256 MB	DVMT 64 MB
--	--
2	0
0	1
Marvell 88E8056	intel® 82562
2 x SATA 300	--
1 x ATA133	2 x ATA100
--	--
--	Yes
4 x USB 2.0	4 x USB 2.0
Yes	Yes
1 x RS-232, 1 x RS-232/422/485	1 x RS-232,1 x RS-232/422/485
Yes (MiniDIN)	Yes (MiniDIN)
optional audio cable	optional audio board
--	--
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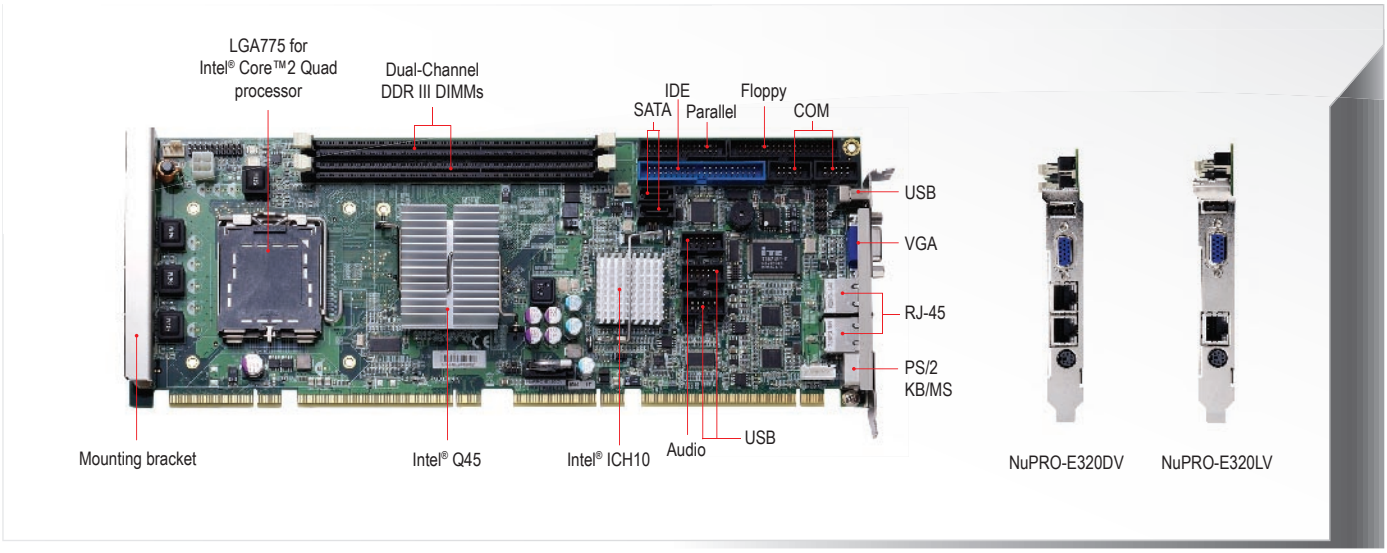
NuPRO-E320

PICMG® 1.3 Full-Size LGA775 Intel® Core™2 Quad/Duo SHB



Features

- PICMG® 1.3 Full-Size SBC
- Intel® Q45 + ICH10 chipset supports up to 1333 MHz FSB LGA775 Intel® Core™2 Quad/Duo processor
- Dual-Channel DDR3 800/1066 MHz, up to 8 GB
- One PCI Express® x16 and four PCI Express® x1 (or one x4) link to backplane
- Dual Gigabit Ethernet via PCI Express® x1 Bus

Specifications

Processor System

CPU	Intel® Core™2 Quad Q9400, 2.66GHz, 1333MHz FSB, 6MB L2 Cache, 45nm, 95W TDP, LGA775
	Intel® Core™2 Duo E8400, 3.0GHz, 1333MHz FSB, 6MB L2 Cache, 45nm, 65W TDP, LGA775
	Intel® Core™2 Duo E7400, 2.8GHz, 1066MHz FSB, 3MB L2 Cache, 45nm, 65W TDP, LGA775
	Intel® Core™2 Duo E6400, 2.13GHz, 1066MHz FSB, 2MB L2 Cache, 65nm, 65W TDP, LGA775
	Intel® Core™2 Duo E5300, 2.6GHz, 800MHz FSB, 2MB L2 Cache, 45nm, 65W TDP, LGA775
	Intel® Core™2 Duo E4300, 1.8GHz, 800MHz FSB, 2MB L2 Cache, 65nm, 65W TDP, LGA775
	Intel® Pentium® Dual Core E2160, 1.8GHz, 800MHz FSB, 1MB L2 Cache, 65nm, 65W TDP, LGA775
	Intel® Celeron® 440, 2.0GHz, 800MHz FSB, 512KB L2 Cache, 65nm, 35W TDP, LGA775
Chipset	Intel® Q45 + ICH10
Memory	Dual-Channel DDR3 800/1066 MHz, up to 8 GB
TPM	Infineon® SLB9635 TT1.2 (optional)
BIOS	AMI BIOS 16 Mb flash memory
Watchdog Timer	1-255 sec or 1-255 min software programmable and can generate system reset
Hardware Monitor	CPU/System temperature, fan speed and onboard DC voltages
Operating Systems	Windows® XP/Vista, Fedoa™ 8, RedHat Enterprise Linux 5.0

I/O Interfaces

Serial ATA	4x Serial ATA II ports with 3.0 Gbps data transfer rate (2x onboard headers, 2x backplane)
USB	9x USB 2.0 ports (1x faceplate, 4x onboard pin headers, and 4x backplane)
KB/MS	1x PS/2 keyboard/mouse
Floppy	1x Floppy
Parrallel Port	1x LPT
Serial Port	1x RS-232, 1x RS-232/422/485

Audio

Audio Codec	Realtek ALC262 support by DB-Audio2
Interface	Pin header for High Definition audio interface

Display

Graphics	Intel® Graphics Media Accelerator 4500
CRT	Up to 2048 x 1536 @ 75 Hz (QXGA)

Ethernet

Controller	Dual Intel® 82574L PCIe® network controllers (optional)
	10/100/1000Base-T dual-Gigabit Ethernet
Interface	PCIe®x1 Bus
Wake On LAN	Yes

Mechanical and Environmental

Form Factor	Full-Size PICMG® 1.3 System Host Board
Dimensions	338 mm x 122 mm (L x W)
Operating Temp.	0°C to 60°C
Storage Temp.	-20°C to 80°C
Certifications	CE, FCC Class A
Relative Humidity	10% to 90%, non-condensed

Ordering Information

Model Number	Description/Configuration
NuPRO-E320DV	Full-Size PICMG® 1.3 LGA775 Intel® Core™2 Quad/Duo SHB with dual-channel DDR3, TPM, dual GbE, SATA II
NuPRO-E320LV	Full-Size PICMG® 1.3 LGA775 Intel® Core™2 Quad/Duo SHB with dual-channel DDR3, GbE, SATA II

Note 1: CPU, Memory module and Cooler kit are not included.

Optional Accessories

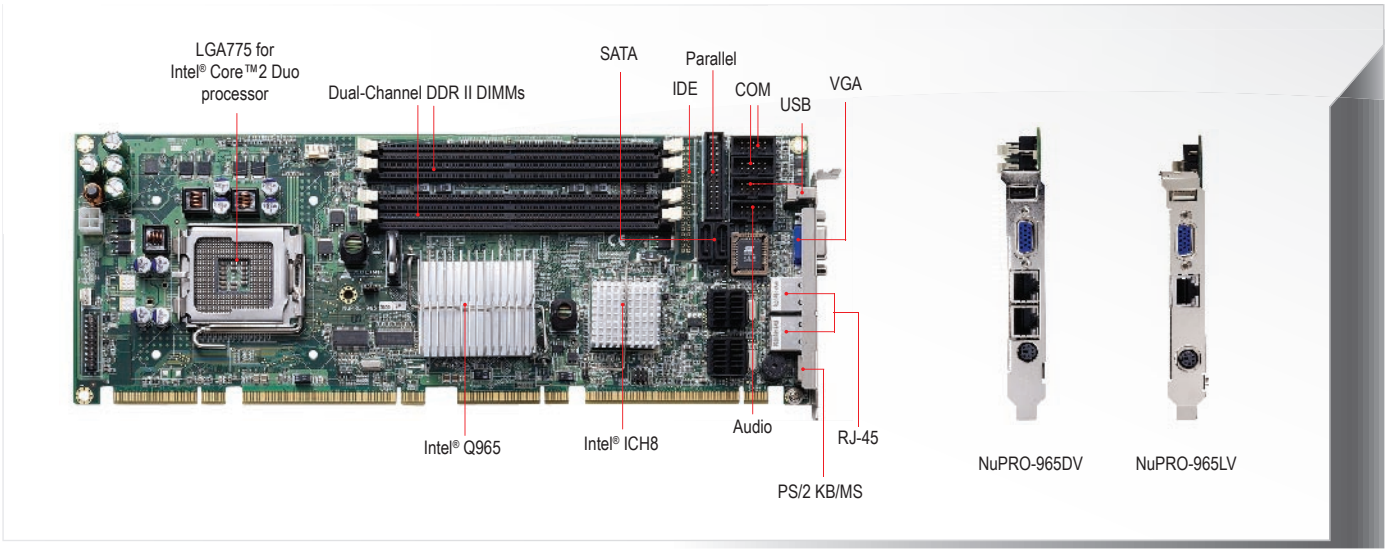
Model Number	Description/Configuration
1U CPU Cooler + backplate	LGA775 1U Thermal Module + backplate
3U CPU Cooler	LGA775 3U Thermal Module
Backplate	Backplate for 3U CPU cooler
Copper-core Cooler	LGA 775 copper-core cooler with backplate
DB-Audio2	High Definition audio daughter board with mic-in/line- in/line-out

Packing List

NuPRO-E320	1x COM+Parallel port cables with bracket
1x Y-cable for PS/2 keyboard/mouse	2x SATA data cable
1x UltraATA 100 IDE cable	1x dual-plug SATA power cable
1x Floppy cable	Driver DVD
1x USB 2.0 cable bracket	User's manual
1x COM port cable with bracket	

NuPRO-965

PICMG® 1.3 Full-Size LGA775 Intel® Core™2 Quad/Duo SHB



Features

- PICMG® 1.3 Full-Size SBC
- Supports 1066 MHz FSB LGA775 Intel® Core™2 Quad/Duo processor
- Intel® Q965+ICH8 chipset with Dual-Channel DDR2 800/667/533 MHz, up to 8 GB
- One PCI Express® x16 and four PCI Express® x1 (or one x4) Link to backplane
- Dual Gigabit Ethernet via PCI Express® x1 Bus

Specifications

Processor System

CPU	Intel® Core™2 Duo E6400, 2.13GHz, 1066MHz FSB, 2MB L2 Cache, 65nm, 65W TDP, LGA775 Intel® Core™2 Duo E4300, 1.8GHz, 800MHz FSB, 2MB L2 Cache, 65nm, 65W TDP, LGA775 Intel® Pentium® Dual Core E2160, 1.8GHz, 800MHz FSB, 1MB L2 Cache, 65nm, 65W TDP, LGA775 Intel® Celeron® 440, 2.0GHz, 800MHz FSB, 512KB L2 Cache, 65nm, 35W TDP, LGA775 Intel® Pentium® 4 651, 3.4GHz, 800MHz FSB, 2MB L2 Cache, 65nm, 95W TDP, LGA775 Intel® Pentium® 4 551, 3.4GHz, 800MHz FSB, 1MB L2 Cache, 90nm, 84W TDP, LGA775 Intel® Pentium® 4 531, 3.0GHz, 800MHz FSB, 1MB L2 Cache, 90nm, 84W TDP, LGA775 Intel® Celeron® D 352, 3.2GHz, 533MHz FSB, 512KB L2 Cache, 65nm, 95W TDP, LGA775 Intel® Celeron® D 341, 2.93GHz, 533MHz FSB, 256KB L2 Cache, 90nm, 84W TDP, LGA775
Chipset	Intel® Q965 + ICH8
Memory	Dual-Channel DDR2 800/667/533 MHz, up to 8 GB
BIOS	AMI BIOS 8 Mb flash memory
Watchdog Timer	1-255 sec or 1-255 min software programmable and can generate system reset
Hardware Monitor	CPU/System temperature, fan speed and onboard DC voltages
Operating Systems	Windows® 2000/XP/Vista, Fedora™ Core 6

I/O Interfaces

IDE (PATA)	1x UltraATA 66/100/133 (only LV version)
Serial ATA	2x Serial ATA II ports with 3.0 Gbps data transfer rate
USB	7x USB 2.0 ports (1x faceplate, 2x onboard pin headers, and 4x backplane)
KB/MS	1x PS/2 keyboard/mouse
Parrallel Port	1x LPT
Serial Port	2x RS-232

Audio

Audio Codec	Realtek ALC262 support by DB-Audio2
Interface	Pin header for High Definition audio interface

Display

Graphics	Intel® GMA 3000 integrated in Intel® Q965 GMCH
VRAM	Shared system memory up to 256MB
CRT	External Dsub-15 connector, resolution up to 2048 x 1536 @ 75Hz

Ethernet

Controller	Integrated Intel® 82573 PCIe® network controllers 10/100/1000Base-T dual-Gigabit Ethernet
Interface	PCIe® x1 Bus (dual-GbE only available on NuPRO-965DV)
Wake On LAN	Yes

Mechanical and Environmental

Form Factor	Full-Size PICMG® 1.3 System Host Board
Dimensions	338 mm x 122 mm (L x W)
Operating Temp.	0°C to 60°C
Storage Temp.	-20°C to 80°C
Certifications	CE, FCC Class A
Relative Humidity	10% to 90%, non-condensed

Ordering Information

Model Number	Description/Configuration
NuPRO-965DV	Full-Size PICMG® 1.3 LGA775 Intel® Core™2 Quad/Duo SHB with dual-channel DDR2, dual GbE, SATA II
NuPRO-965LV	Full-Size PICMG® 1.3 LGA775 Intel® Core™2 Quad/Duo SHB with dual-channel DDR2, GbE, SATA II, IDE

Note 1: CPU, Memory module and Cooler kit are not included.

Optional Accessories

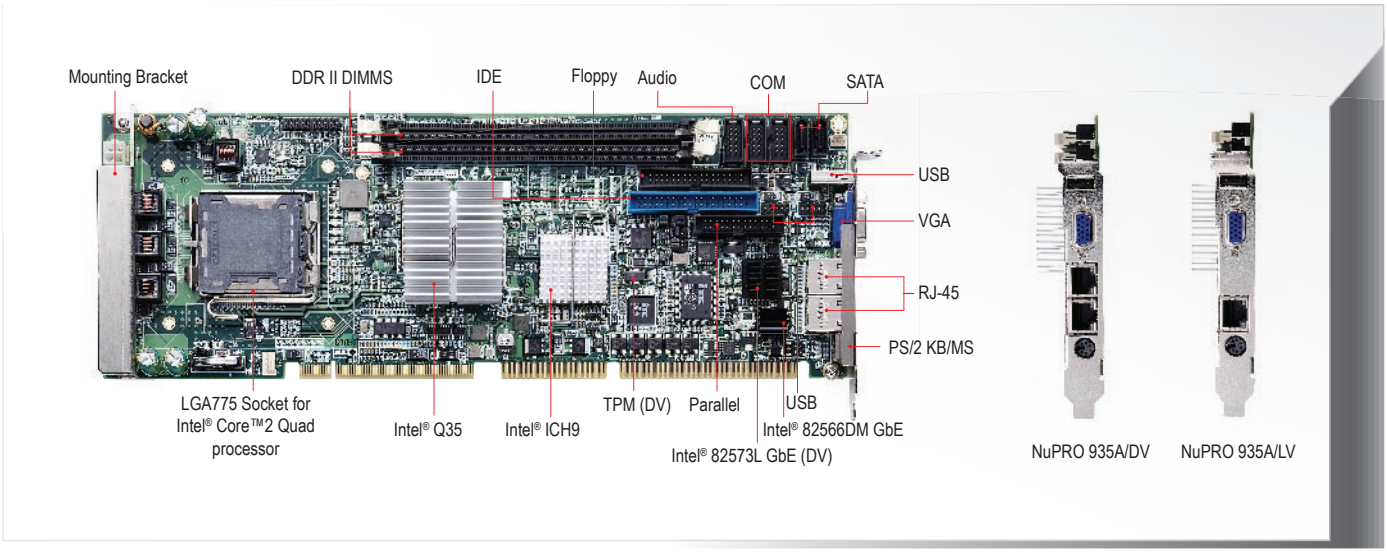
Model Number	Description/Configuration
1U CPU Cooler + backplate	LGA775 1U Thermal Module + backplate
3U CPU Cooler	LGA775 3U Thermal Module
Backplate	Backplate for 3U CPU cooler
DB-Audio2	High Definition audio daughter board with mic-in/line- in/line-out

Packing List

NuPRO-965	1x COM+Parallel port cables with bracket
1x Y-cable for PS/2 keyboard/mouse	2x SATA data cable
1x UltraATA 100 IDE cable (NuPRO-965LV only)	1x dual-plug SATA power cable
1x USB 2.0 cable bracket	Driver CD
1x COM port cable with bracket	User's manual

NuPRO-935A

PICMG® 1.0 SBC with Intel®Q35 Chipset, VGA, SATA II, Dual GbE, USB, IDE, FDD



Features

- Intel® Core™2 Duo/Quad processors supports up to 1333 MHz FSB
- Trusted Platform Module
- Dual Intel® Gigabit Ethernet controllers
- Optional High Definition Audio kit

Specifications

Processor System

CPU	Intel® Core™2 Quad Q9400, 2.66GHz, 1333MHz FSB, 6MB L2 Cache, 45nm, 65W TDP, LGA775FSB
	Intel® Core™2 Duo E8400, 3.0GHz, 1333MHz FSB, 6MB L2 Cache, 45nm, 65W TDP, LGA775
	Intel® Core™2 Duo E7400, 2.8GHz, 1066MHz FSB, 3MB L2 Cache, 45nm, 65W TDP, LGA775
	Intel® Core™2 Duo E6400, 2.13GHz, 1066MHz FSB, 2MB L2 Cache, 65nm, 65W TDP, LGA775
	Intel® Core™2 Duo E4300, 1.8GHz, 800MHz FSB, 2MB L2 Cache, 65nm, 65W TDP, LGA775
	Intel® Pentium® Dual Core E2160, 1.8GHz, 800MHz FSB, 1MB L2 Cache, 65nm, 65W TDP, LGA775
	Intel® Celeron® 440, 2.0GHz, 800MHz FSB, 512K L2 Cache, 35nm, 65W TDP, LGA775
Chipset	Intel® Q35 + ICH9 Express Chipset
Memory	2 x 240-pin DIMM sockets
	Dual-Channel DDR2-800/667 SDRAM, up to 4 GB
TPM	Infineon SLB9635 TT 1.2 (optional)
BIOS	AMI BIOS/ SPI Flash ROM 16Mb
Watchdog Timer	1-255 sec or 1-255 min software programmable
Hardware Monitor	CPU/System temperatures, fan speed and onboard DC voltages
Operating Systems	Windows® XP, Windows® Vista, Fedora™ 8, RedHat™ Enterprise Linux 5

I/O Interfaces

IDE (PATA)	1x UltraATA 66/100/133, support one device
Serial ATA	2x Serial ATA ports with 3.0 Gbps data transfer rate
USB	5x USB 2.0 ports (1x faceplate, 4x onboard pin headers)
KB/MS	1x PS/2 keyboard/mouse
Floppy	1x Floppy
Parallel Port	1x LPT
Serial Port	1x RS-232, 1x RS-232/422/485

Audio

Audio Codec	Realtek® ALC262 on DB-Audio2
Interfaces	Supports HDA Line-in/Line-out/Mic-in

Display

Graphics	Intel® GMA 3100 integrated in Intel® Q35 GMCH
VRAM	Shared system memory up to 256 MB
CRT	External D-sub 15 connector, up to 2048x1536 @ 75Hz

Ethernet

Controller	Intel® 82566DM and Intel® 82573L (optional)
Interface	2x 10/100/1000Mbps Ethernet ports
Wake On LAN	Supported on 82566DM

Mechanical and Environmental

Form Factor	Full-Size PICMG® 1.0 SBC
Dimensions	338 mm x 122 mm (L x W)
Operating Temp.	0 to 60˚C
Storage Temp.	-20 to 80˚C
Certifications	CE, FCC Class A
Relative Humidity	10% to 90%, non-condensed

Ordering Information

Model Number	Description/Configuration
NuPRO-935A/DV	PICMG® 1.0 Core™2 Quad/Duo Single Board Computer, Q35/ICH9, TPM, Dual GbE/SATA II/ IDE/ Floppy
NuPRO-935A/LV	PICMG® 1.0 Core™2 Quad/Duo Single Board Computer, Q35/ICH9, GbE/SATA II/ IDE/Floppy

Optional Accessories

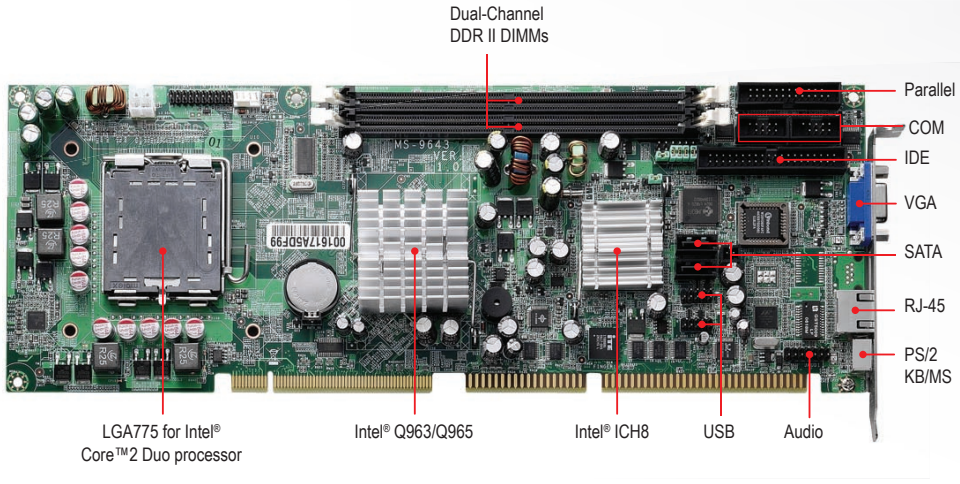
Model Number	Description/Configuration
1U CPU Cooler + backplate	LGA775 1U Thermal Module + backplate
2U CPU Cooler + backplate	LGA775 2U Thermal Module + backplate
3U CPU Cooler	LGA775 3U Thermal Module
Backplate	Backplate for 3U CPU cooler
DB-Audio2	Realtek ALC262 High Definition Audio kit supports Line-in, Line-out, and Mic-in

Packing List

NuPRO-935A	1x COM+Parallel port cables with bracket
1x Y-cable for PS/2 keyboard/mouse	2x SATA data cable
1x UltraATA 100 IDE cable	1x dual-plug SATA power cable
1x Floppy cable	Driver DVD
1x USB 2.0 cable bracket	User's manual
1x COM port cable with bracket	

NuPRO-852

PICMG® 1.0 Full-Size LGA775 Intel® Core™2 Duo SBC with DDR2, GbE, SATA II, & IDE



Features

- PICMG® 1.0 Full-Size SBC
- Supports up to 1066 MHz FSB LGA775 Intel® Core™2 Duo processor
- Intel® Q963/Q965 + ICH8 chipset with Dual-Channel DDR2 667/533 MHz
- Supports PCI Express® x1 Gigabit Ethernet port

Specifications

Processor System

CPU	Intel® Core™2 Duo E6400, 2.13GHz, 1066MHz FSB, 2MB L2 Cache, 65nm, 65W TDP, LGA775
	Intel® Core™2 Duo E4300, 1.8GHz, 800MHz FSB, 2MB L2 Cache, 65nm, 65W TDP, LGA775
	Intel® Pentium® Dual Core E2160, 1.8GHz, 800MHz FSB, 1MB L2 Cache, 65nm, 65W TDP, LGA775
	Intel® Celeron® 440, 2.0GHz, 800MHz FSB, 512KB L2 Cache, 65nm, 35W TDP, LGA775
	Intel® Pentium® 4 651, 3.4GHz, 800MHz FSB, 2MB L2 Cache, 65nm, 95W TDP, LGA775
	Intel® Pentium® 4 551, 3.4GHz, 800MHz FSB, 1MB L2 Cache, 90nm, 84W TDP, LGA775
	Intel® Pentium® 4 531, 3.0GHz, 800MHz FSB, 1MB L2 Cache, 90nm, 84W TDP, LGA775
	Intel® Celeron® D 352, 3.2GHz, 533MHz FSB, 512KB L2 Cache, 65nm, 95W TDP, LGA775
	Intel® Celeron® D 341, 2.93GHz, 533MHz FSB, 256KB L2 Cache, 90nm, 84W TDP, LGA775
Chipset	Intel® Q963/Q965 + Intel® ICH8 chipset
Memory	Dual-Channel DDR2 667/533 MHz, up to 4 GB
BIOS	Award 8 Mb flash memory
Watchdog Timer	1-255 sec or 1-255 min software programmable and can generate system reset
Hardware Monitor	CPU/System temperature, fan speed and onboard DC voltages
Operating Systems	Windows® XP/Server 2003, Fedora™ Core 7

I/O Interfaces

IDE (PATA)	1x UltraATA 66/100/133
Serial ATA	2x Serial ATA II ports with 3.0 Gbps data transfer rate
USB	4x USB 2.0 ports by onboard pin headers
KB/MS	1x PS/2 keyboard/mouse
Parallel Port	1x LPT
Serial Port	1x RS-232, 1x RS-232/422/485

Audio

Audio Codec	Realtek® ALC883 Codec
Interface	Audio pin header

Display

Graphics	Intel® Q963/965 integrated VGA (GMA 3000)

Ethernet

Controller	Onboard Marvell 88E8056 GbE controller
	10/100/1000Base-T Gigabit Ethernet
Interface	x1 PCIe® Bus
Wake On LAN	Yes

Mechanical and Environmental

Form Factor	Standard Full-Size PICMG® 1.0 SBC
Dimensions	338 mm x 122 mm (L x W)
Operating Temp.	0°C to 60°C
Storage Temp.	-20°C to 80°C
Certifications	CE, FCC Class A
Relative Humidity	10% to 90%, non-condensed

Ordering Information

Model Number	Description/Configuration
NuPRO-852LV	PICMG® 1.0 Full-Size LGA775 Intel® Core™2 Duo SBC with Q963/Q965, DDR II, GbE, SATA II, IDE
NuPRO-852DV	PICMG® 1.0 Full-Size LGA775 Intel® Core™2 Duo SBC with Q965, DDR II, Dual GbE, SATA II, IDE

Note 1: CPU, Memory module and Cooler kit are not included.

Optional Accessories

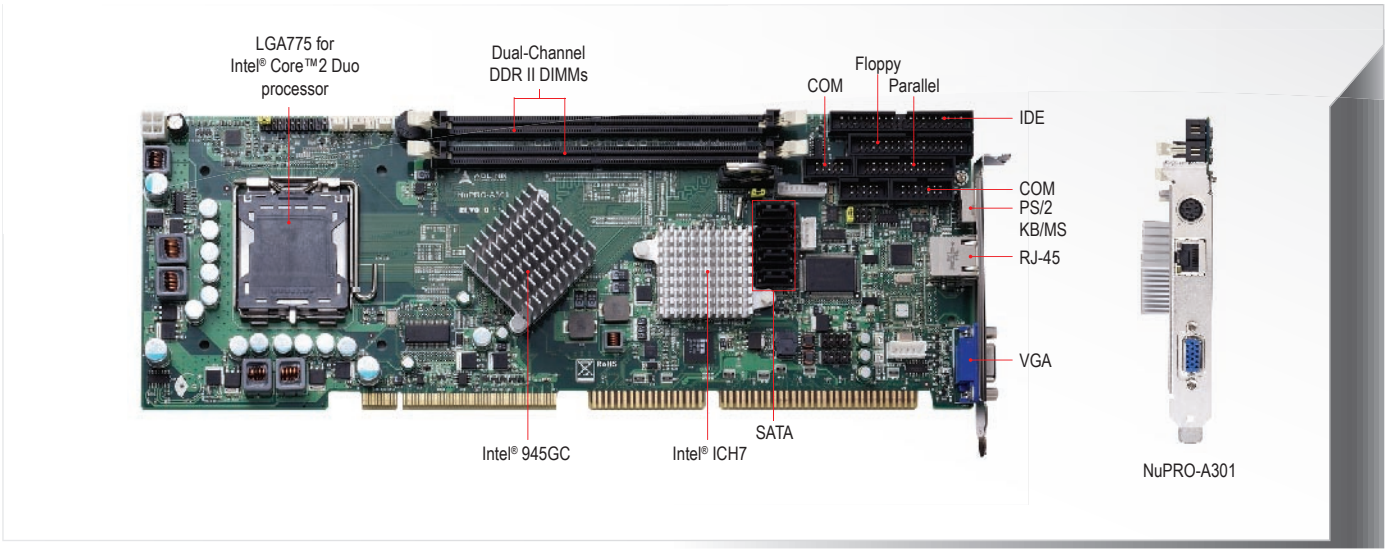
Model Number	Description/Configuration
1U CPU Cooler + backplate	LGA775 1U Thermal Module + backplate
3U CPU Cooler	LGA775 3U Thermal Module
Backplate	Backplate for 3U CPU cooler
Audio Cable	Audio Cable for NuPRO-852

Packing List

NuPRO-852	1x COM+Parallel port cables with bracket
1x Y-cable for PS/2 keyboard/mouse	2x SATA data cable
1x UltraATA 100 IDE cable	2x SATA power cable
1x USB 2.0 cable bracket	Driver CD
1x COM port cable with bracket	User's manual

NuPRO-A301

PICMG® 1.0 Full-Size LGA775 Intel® Core™2 Duo SBC



Features

- PICMG® 1.0 Full-Size SBC
- Intel® 945GC + ICH7 chipset supports up to 800 MHz FSB, LGA775 Intel® Core™2 Quad/Duo processor
- Dual-Channel DDR2 533/667 MHz, up to 4 GB

Specifications

Processor System

CPU	Intel® Core™2 Duo E4300, 1.8GHz, 800MHz FSB, 2MB L2 Cache, 65nm, 65W TDP, LGA775 Intel® Pentium® Dual Core E2160, 1.8GHz, 800MHz FSB, 1MB L2 Cache, 65nm, 65W TDP, LGA775 Intel® Celeron® 440, 2.0GHz, 800MHz FSB, 512KB L2 Cache, 65nm, 35W TDP, LGA775 Intel® Pentium® 4 651, 3.4GHz, 800MHz FSB, 2MB L2 Cache, 65nm, 95W TDP, LGA775 Intel® Pentium® 4 551, 3.4GHz, 800MHz FSB, 1MB L2 Cache, 90nm, 84W TDP, LGA775 Intel® Pentium® 4 531, 3.0GHz, 800MHz FSB, 1MB L2 Cache, 90nm, 84W TDP, LGA775 Intel® Celeron® D 352, 3.2GHz, 533MHz FSB, 512KB L2 Cache, 65nm, 95W TDP, LGA775 Intel® Celeron® D 341, 2.93GHz, 533MHz FSB, 256KB L2 Cache, 90nm, 84W TDP, LGA775
Chipset	Intel® 945GC + ICH7
Memory	Dual-Channel DDR2 533 MHz, up to 2 GB
BIOS	AMI BIOS 8 Mb flash memory
Watchdog Timer	1-255 sec or 1-255 min software programmable and can generate system reset
Hardware Monitor	CPU/System temperature, fan speed and onboard DC voltages
Operating Systems	Windows® XP/Vista, Fedora™ 8

I/O Interfaces

IDE (PATA)	1x UltraATA 66/100/133
Serial ATA	4x Serial ATA II ports with 3.0 Gbps data transfer rate
USB	4x USB 2.0 ports on onboard pin header
KB/MS	1x PS/2 keyboard/mouse
Floppy	1x Floppy
Parallel Port	1x LPT
Serial Port	1x RS-232, 1x RS-232/422/485

Audio

Audio Codec	Realtek ALC655 supported by IP-ALCS20
Interface	Pin header for AC'97 audio interface

Display

Graphics	Intel® Graphics Media Accelerator 950
VRAM	224MB
CRT	Up to 2048 x 1536 @ 75 Hz (QXGA)

Ethernet

Controller	Single Intel® 82574L PCIe® network controllers 10/100/1000Base-T Gigabit Ethernet
Interface	PCIe®x1 Bus
Wake On LAN	Yes

Mechanical and Environmental

Form Factor	Full-Size PICMG® 1.0 Single Board Computer
Dimensions	338 mm x 122 mm (L x W)
Operating Temp.	0°C to 60°C
Storage Temp.	-20°C to 80°C
Certifications	CE, FCC Class A
Relative Humidity	10% to 90%, non-condensed

Ordering Information

Model Number	Description/Configuration
NuPRO-A301	Full-Size PICMG® 1.0 LGA775 Intel® Core™2 Duo SBC with dual-channel DDR2, GbE, SATA II

Note 1: CPU, Memory module and Cooler kit are not included.

Optional Accessories

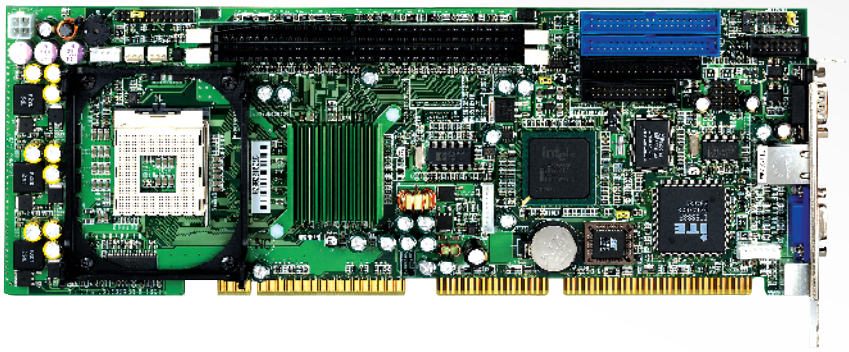
Model Number	Description/Configuration
1U CPU Cooler + backplate	LGA775 1U Thermal Module + backplate
3U CPU Cooler	LGA775 3U Thermal Module
Backplate for 3U Cooler	Backplate for 3U CPU cooler
Copper-core Cooler	LGA 775 copper-core cooler with backplate
IP-ALCS20	AC'97 audio daughter board with mic-in/ line-in/line-out

Packing List

NuPRO-A301	1x COM+Parallel port cables with bracket
1x Y-cable for PS/2 keyboard/mouse	2x SATA data cable
1x UltraATA 100 IDE cable	2x SATA power cable
1x Floppy cable	Driver CD
1x USB 2.0 cable bracket	User's manual
1x COM port cable with bracket	

NuPRO-841

PICMG® 1.0 Full-Size Socket 478 Intel® Pentium® 4 SBC with DDR and Fast Ethernet



Features

- PICMG® 1.0 Full-Size SBC
- High computing capability, supports 533 MHz FSB Socket 478 Intel Pentium® 4 processor with Intel® Hyper-Threading technology
- Best C/P ratio for building an entry-level IPC system

Specifications

System

CPU	Socket 478 Intel® Pentium® 4 processor
FSB	533/400 MHz
Chipset	Intel® 845GV + ICH4
Memory	DDR 333/266 MHz, up to 2 GB
BIOS	Award 4 Mb flash memory
Watchdog Timer	1-255 sec or 1-255 min software programmable and can generate system reset
Hardware Monitor	CPU/System temperature, fan speed and onboard DC voltages

I/O Interfaces

IDE	Two-channel UltraATA 66/100
USB	Four USB 2.0 ports by onboard pin header
Multi I/O	One RS-232, one RS-232/422/485, one LPT, one Floppy, one IrDA, and one PS/2 keyboard/mouse

Display

VGA	Intel® 845GV integrated VGA (Intel® Extreme Graphics)

Ethernet

10/100 LAN	Onboard Intel® 82562ER Ethernet controller supports 10/100 Fast Ethernet

Mechanical and Environmental

Form Factor	Standard Full-Size PICMG® CPU board PICMG® 1.0
Dimensions	338 mm x 122 mm (L x W)
Operating Temp.	0°C to 60°C
Storage Temp.	-20°C to 80°C
Certifications	CE, FCC Class A

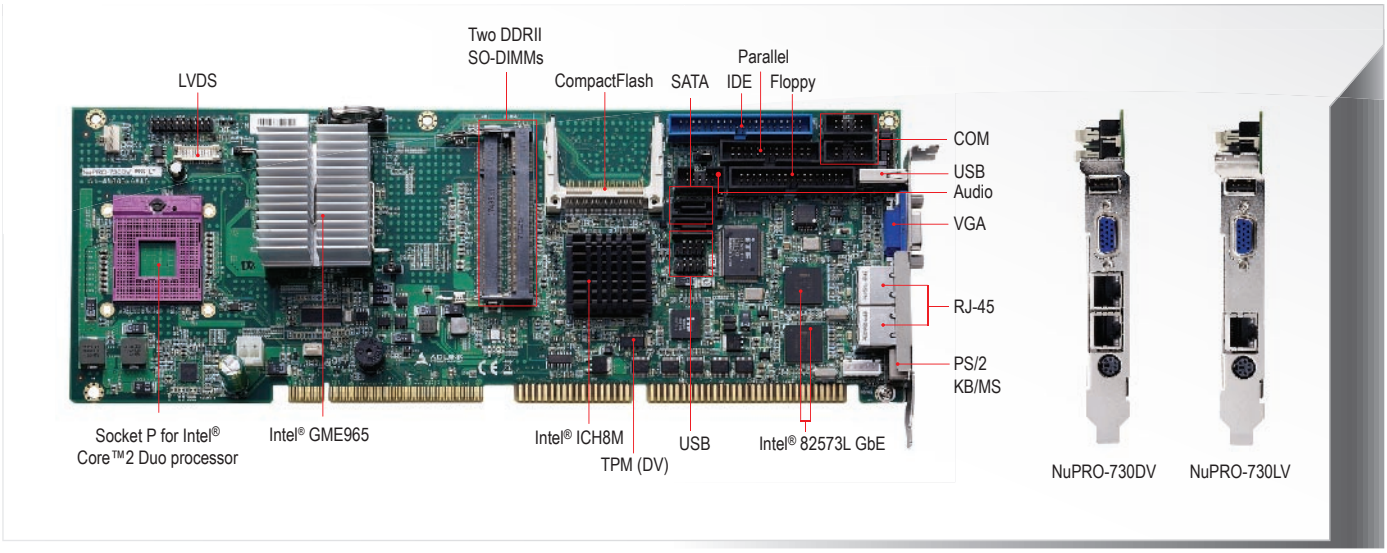
Ordering Information

Model Number	Description/Configuration
NuPRO-841	PICMG® 1.0 Full-Size Socket 478 Intel® Pentium® 4 SBC with DDR and Fast Ethernet

Note: CPU, Memory module and Cooler kit are not included.

NuPRO-730

Intel® Core™2 Duo Mobile PICMG® 1.0 SBC



Features

- Intel® Core™2 Duo/Celeron® Mobile processors in Micro-FCPGA package
- Integrated Graphics Controller, supports Dual Independent Display on VGA/LVDS
- Trusted Platform Module
- Dual Intel® Gigabit Ethernet controllers
- Optional High Definition Audio kit

Specifications

Processor System

CPU	Intel® Core™2 Duo Mobile T7500, 2.2GHz, FSB 800MHz, 4MB L2 Cache, 65nm, 35W TDP
	Mobile Intel® Celeron® M 550, 2GHz, FSB 533MHz, 1MB L2 Cache, 65nm, 27W TDP
Chipset	Intel® GME965 + ICH8M Express Chipset
Memory	2 x 200-pin SO-DIMM sockets supporting dual-channel DDR2-667 SDRAM, up to 4 GB
TPM	Infineon SLB9635 TT 1.2 (optional)
BIOS	AMI BIOS/ SPI Flash ROM 16 Mb
Watchdog Timer	1~255 sec./min. software programmable
Hardware Monitor	CPU/System temperature, fan speed and onboard DC voltages
Operating Systems	Windows® XP, Windows® Vista, Fedora™ 8, RedHat™ Enterprise Linux 5

I/O Interfaces

IDE (PATA)	1x UltraATA 66/100/133 supports up to 2 devices
CompactFlash	1x CompactFlash type II socket (share with IDE)
Serial ATA	2x Serial ATA ports, with 3.0 Gbps data transfer rate
USB	5x USB 2.0 ports (1 x faceplate, 4 x onboard pin headers)
KB/MS	1x PS/2 keyboard/mouse
Floppy	1x Floppy
Parallel Port	1x LPT
Serial Port	1x RS-232, 1x RS-232/422/485

Audio

Audio Codec	Realtek ALC262 on DB-Audio2
Interface	Pin header for High Definition audio interface

Display

Graphics	Intel® GMA X3100 Integrated in Intel® GME965 GMCH
VRAM	Shared system memory up to 384 MB
CRT	External Dsub-15 connector, up to 2048x1536 @ 75 Hz
LVDS	Single channel 24-bit LVDS

Ethernet

Controller	Dual Intel® 82573L (optional)
Interface	Two 10/100/1000Mbps Ethernet ports
Wake On LAN	Yes

Mechanical and Environmental

Form Factor	Full-Size PICMG® 1.0 SBC
Dimensions	338 mm x 122 mm (L x W)
Operating Temp.	0°C to 60°C
Storage Temp.	-20°C to 80°C
Certifications	CE, FCC Class A
Relative Humidity	10% to 90%, non-condensed

Ordering Information

Model Number	Description/Configuration
NuPRO-730DV	PICMG® 1.0 Core™2 Duo Mobile Single Board Computer, GME965/ICH8M, TPM, Dual GbE
NuPRO-730LV	PICMG® 1.0 Core™2 Duo Mobile Single Board Computer, GME965/ICH8M, Single GbE

Optional Accessories

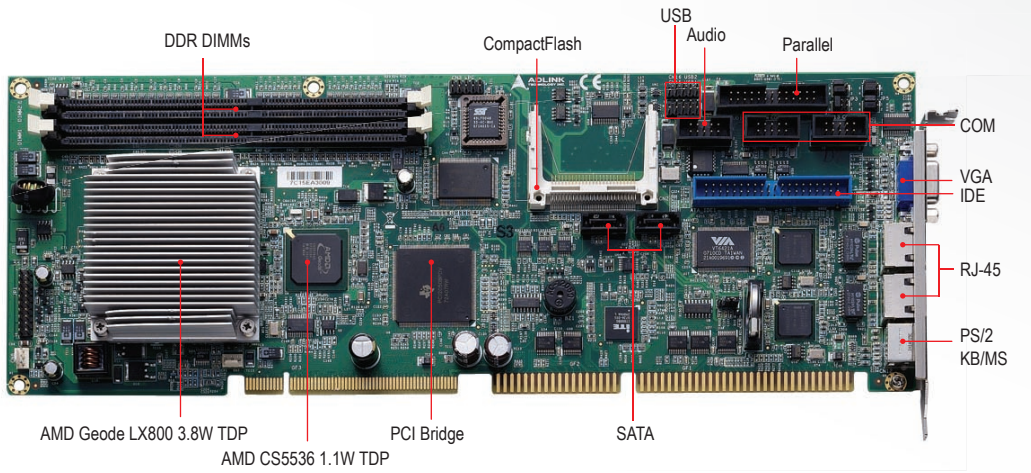
Model Number	Description/Configuration
Socket-M 1U CPU Cooler	1U CPU cooler with backplate
DB-Audio2	Realtek® ALC262 High Definition Audio kit supports Line-in, Line-out, and Mic-in

Packing List

NuPRO-730	1x COM+Parallel port cables with bracket
1x Y-cable for PS/2 keyboard/mouse	2x SATA data cable
1x UltraATA 100 IDE cable	1x dual-plug SATA power cable
1x Floppy cable	Driver DVD
1x USB 2.0 cable bracket	User's manual
1x COM port cable with bracket	

NuPRO-720

PICMG® 1.0 Full-Size AMD Geode™ LX 800 SBC with DDR DIMM, VGA, & CF



Features

- PICMG® 1.0 Full-Size SBC, AMD Geode™ LX 800 processor
- Integrated VGA functionality
- Onboard CompactFlash® socket
- ISA bus with high driving capability
- Fanless capable

Specifications

Processor System

CPU	AMD Geode LX 800, 500MHz, 128 KB L2 Cache
Chipset	AMD Geode CS5536
Memory	Two 184-pin DIMM sockets
	Supports DDR-400 SDRAM, up to 2 GB
BIOS	Phoenix-Award BIOS with 2 Mb Flash ROM
Watchdog Timer	1-255 second or 1-255 minute programmable and can generate system reset.
Hardware Monitor	CPU/System temperature, fan speed and onboard DC voltage
Operating Systems	Windows® XP, Fedora™ Core 6

I/O Interfaces

IDE (PATA)	Single-channel UltraATA 100 for CF
	Single-channel UltraATA 133 for IDE
CompactFlash	1x CompactFlash® type II socket
Serial ATA	2x Serial ATA ports with 150 MB/s data transfer
USB	4x USB 2.0 ports via onboard pin header
KB/MS	1x PS/2 keyboard/mouse
Parallel Port	1x LPT
Serial Port	1x RS-232, 1x RS-232/422/485

Audio

Audio Codec	Realtek ALC203 support by DB-AC97S
Interface	Supports two channel audio with line-in, line-out and mic-in

Display

Graphics	Integrated in AMD Geode™ LX 800, supporting up to 1600 x 1200 x 32 bpp at 60 Hz
VRAM	Shared system memory up to 16 MB
CRT	External D-sub 15 connector

Ethernet

Controller	Two Intel 82551ER 10/100 Mbps controllers
Interface	Two RJ-45 Ethernet ports
Wake On LAN	Yes

Mechanical and Environmental

Form Factor	Full-Size PICMG® 1.0 SBC
Dimensions	338 mm x 122 mm (L x W)
Operating Temp.	0°C to 60°C
Storage Temp.	-20°C to 80°C
Certifications	CE, FCC Class A
Relative Humidity	10% to 90%, non-condensed

Ordering Information

Model Number	Description/Configuration
NuPRO-720	PICMG® 1.0 Full-Size AMD Geode™ LX 800 SBC with DDR DIMM, VGA, CF, Heatsink for CPU

Optional Accessories

Model Number	Description/Configuration
DB-AC97S	AC'97 audio kit with mic-in, line-in and line-out ports

Packing List

NuPRO-720 (with heatsink)	1x COM+Parallel port cables with bracket
1x Y-cable for PS/2 keyboard/mouse	2x SATA data cable
1x UltraATA 100 IDE cable	1x dual-plug SATA power cable
1x USB 2.0 cable bracket	Driver CD
1x COM port cable with bracket	User's manual

Selection Guide

Industrial Motherboards

Mini-ITX

MicroATX

Model Name		MI-960	MI-965	M-946	M-945
CPU	Socket	LGA 775	Socket P	LGA 775	LGA 775
	CPU Support	Intel® Core™2 Duo	Intel® Core™2 Duo	Intel® Core™2 Duo	Intel® Pentium® D
	FSB	1066/800/533 MHz	800/533 MHz	1066/800/533 MHz	1066/800/533 MHz
Chipset	Northbridge	Q965	GME965	945G	945G
	Southbridge	ICH8	ICH8M	ICH7	ICH7
Memory	DIMM Type	DDR2	DDR2	DDR2	DDR2
	Speed	800/667/533 MHz	667/533 MHz	667/533 MHz	667/533 MHz
	DIMM	2	2	2	4
	Max. Capacity	4 GB	4 GB	2GB	4 GB
	ECC/Reg.	--	--	--	--
Form Factor	Dimensions	170 mm x 170 mm	170 mm x 170 mm	244 mm x 244 mm	244 mm x 244 mm
Display	Graphics Core	Intel® GMA 3000	Intel® GMA X3100	Intel® GMA 950	Intel® GMA 950
	Graphics I/F	integrated	integrated	integrated	integrated
	Video Memory	DVMT 256 MB	DVMT 384 MB	DVMT 224 MB	DVMT 224 MB
	LCD Support	LVDS	LVDS	DVI/LVDS	LVDS[1]
Ethernet	Gigabit	2	2	2	1
	10/100	0	0	0	0
	Controller	Marvell 88E8053 and Intel® 82566DM	Intel® 82573L and 82566DC	Intel® 82573E	Intel® 82573E
Storage	Serial ATA	2x SATA 300	2x SATA 300	2x SATA 300	4x SATA 300
	IDE	1x ATA133	1x ATA133	1x ATA100	1x ATA100
	CompactFlash	Yes	Yes	Yes	--
	Floppy	--	--	--	Yes
I/O Ports	USB	8x USB 2.0	8x USB 2.0	8x USB 2.0	8x USB 2.0
	LPT	--	Yes	Yes	Yes
	COM	2x RS-232	2x RS-232	2x RS-232	2x RS-232
	PS/2 KB/MS	Yes (Mini-DIN)	Yes (Mini-DIN)	Yes (Mini-DIN)	Yes (Mini-DIN)
	Audio	Realtek ALC262	Realtek ALC888	Realtek ALC655	Realtek ALC883
Expansion Slots		One PCI™ slot	One PCIe® x16, one PCI™ slot	One PCIe® x16, one PCIe® x1, two PCI™ slots	Two PCIe® x1, two PCI™ slots
Page Number		6-18	6-17	6-15	6-16
Notes					1. Available for OEM requirements

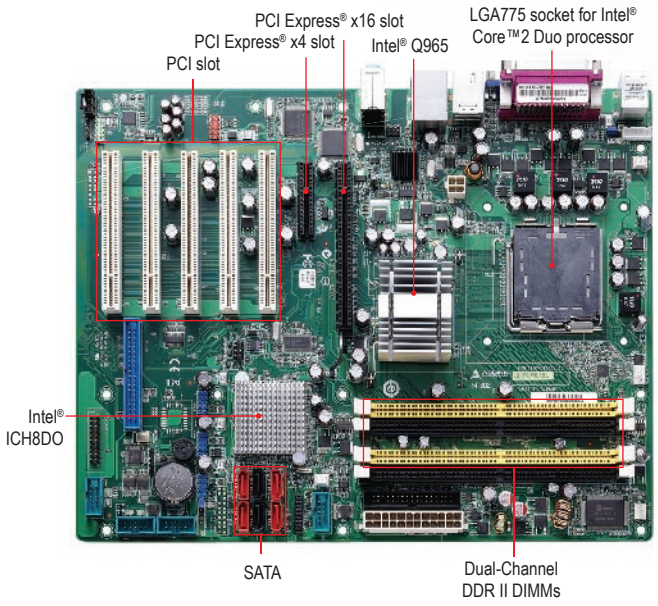
FlexATX

ATX

Model Name		M-321	M-885	M-302
CPU	Socket	LGA775	Socket M	LGA775
	CPU Support	Intel® Core™2 Quad/Duo	Intel® Core™2 Duo	Intel® Core™2 Duo
	FSB	1333/1066/800 MHz	667/533 MHz	1066/800/533 MHz
Chipset	Northbridge	Q45	945GM	Q965
	Southbridge	ICH10	ICH7-M	ICH8DO
Memory	DIMM Type	DDR3	DDR2 SODIMM	DDR2
	Speed	1066/800 MHz	667/533 MHz	800/667/533 MHz
	DIMM	2	2	4
	Max. Capacity	8 GB	2 GB	8 GB
	ECC/Reg.	--	--	--
Form Factor	Dimensions	229 mm x 191 mm	229 mm x 191 mm	304.8 mm x 243.84 mm
Display	Graphics Core	Intel® GMA 4500	Intel® GMA 950	Intel® GMA 3000
	Graphics I/F	Embedded	Embedded	Embedded
	Video Memory	DVMT 512MB	DVMT 224 MB	256 MB
	LCD Support	DVI/LVDS	LVDS	--
Ethernet	Gigabit	2	2	1
	10/100	0	0	0
	Controller	Intel® 82574L	Intel® 82573E	Intel® 82566DM
Storage	Serial ATA	4x SATA 300	2x SATA 150	6x SATA 300
	IDE	--	1x ATA100	1x ATA133
	CompactFlash	--	--	--
	Floppy	--	--	Yes
I/O Ports	USB	8x USB 2.0	6x USB 2.0	10x USB 2.0
	LPT	Yes	Yes	Yes
	COM	2x RS-232	2x RS-232	4x RS-232
	PS/2 KB/MS	Yes (Mini-DIN)	Yes (Mini-DIN)	Yes (Mini-DIN)
	Audio	Realtek ALC262	Realtek ALC883	ADI AD1988
Expansion Slots		One PCIe® x4, one PCI™ slot	Two PCIe® x1, one PCI™ slot	One PCIe® x16, one PCIe® x4, five PCI™ slots
Page Number		6-13	6-14	6-12
Note				

M-302

ATX LGA775 Intel® Core™2 Duo Industrial Motherboard



Features

- Intel® Core™2 Duo Processors, LGA775
- Intel® Q965 + ICH8DO Chipset supports up to 1066 MHz FSB
- Dual-Channel DDR2 533/667/800 MHz, up to 8 GB
- Integrated Graphics or PCI Express® x16
- 1x PCI Express® x4, and 5x PCI™ slots

Specifications

Processor System

CPU	Intel® Core™2 Duo E6400, 2.13GHz, 1066MHz FSB, 2MB L2 Cache, 65nm, 65W TDP, LGA775 Intel® Core™2 Duo E5300, 2.6GHz, 800MHz FSB, 2MB L2 Cache, 45nm, 65W TDP, LGA775 Intel® Core™2 Duo E4300, 1.8GHz, 800MHz FSB, 2MB L2 Cache, 65nm, 65W TDP, LGA775 Intel® Pentium® Dual Core E2160, 1.8GHz, 800MHz FSB, 1MB L2 Cache, 65nm, 65W TDP, LGA775 Intel® Pentium® 4 651, 3.4GHz, 800MHz FSB, 2MB L2 Cache, 65nm, 95W TDP, LGA775 Intel® Pentium® 4 551, 3.4GHz, 800MHz FSB, 1MB L2 Cache, 90nm, 84W TDP, LGA775 Intel® Pentium® 4 531, 3.0GHz, 800MHz FSB, 1MB L2 Cache, 90nm, 84W TDP, LGA775 Intel® Celeron® 440, 2.0GHz, 800MHz FSB, 512KB L2 Cache, 65nm, 35W TDP, LGA775 Intel® Celeron® D 352, 3.2GHz, 533MHz FSB, 512KB L2 Cache, 65nm, 95W TDP, LGA775 Intel® Celeron® D 341, 2.93GHz, 533MHz FSB, 256KB L2 Cache, 90nm, 84W TDP, LGA775
Chipset	Intel® Q965 + ICH8DO
Memory	2x 240-pin DIMM sockets Dual-Channel DDR2 533/667/800 MHz, up to 8 GB
TPM	Onboard header for TPM optional
BIOS	AWARD® BIOS 16Mb flash memory
Watchdog Timer	1-255 sec or 1-255 min software programmable, can generate system reset
Hardware Monitor	CPU/System temperature, fan speed and onboard DC voltages
Operating Systems	Windows® XP/Vista, Fedora™ 8

I/O Interfaces

Serial ATA	6x Serial ATA II ports with 3.0 Gbps data transfer rate
Expansion Slot	1x PCIe® x16, 1x PCIe® x4, 5x PCI™ slots
USB	1 USB 2.0 ports (4x faceplate, 6x onboard pin headers)
KB/MS	2x Mini-DIN for PS/2 keyboard/mouse
Floppy	1x Floppy
Parallel Port	1x LPT
Serial Port	4x RS-232

Audio

Audio Codec	ADI® AD1988
Interface	Line-in, Line-out, Mic-in Onboard pin header for Line-out

Display

Graphics	Intel® Graphics Media Accelerator 3000
VRAM	Shares system memory up to 256MB
CRT	Up to 2048 x 1536 @ 75 Hz (QXGA)
External Graphics	PCI Express® x16

Ethernet

Controller	Intel® 82566DM PCIe® network controller
Interface	PCIe® x1 Bus
Wake On LAN	Yes

Mechanical and Environmental

Form Factor	ATX
Dimensions	305 mm x 244 mm (L x W)
Operating Temp.	0°C to 60°C
Storage Temp.	-20°C to 80°C
Certifications	CE, FCC Class A
Relative Humidity	10% to 90%, non-condensed

Ordering Information

Model Number	Description/Configuration
M-302	ATX LGA775 Intel® Core™2 Duo Industrial Motherboard

Note: CPU, Memory module and Cooler kit are not included.

Optional Accessories

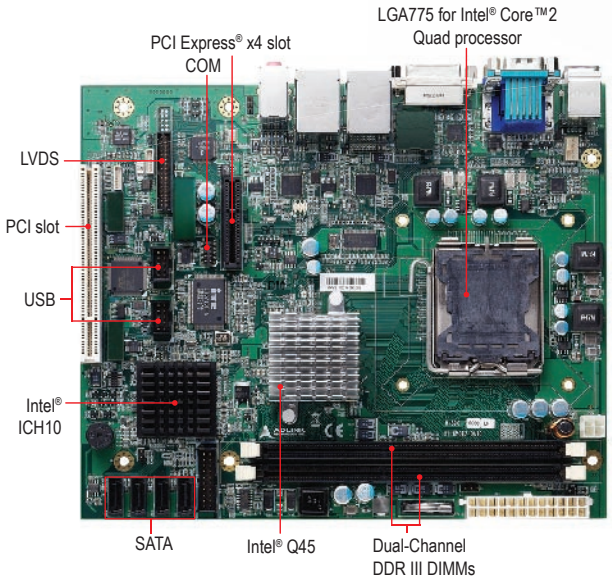
Model Number	Description/Configuration
Copper-core Cooler	LGA 775 copper-core cooler with backplate

Packing List

M-302	2x SATA power cable
M-302 I/O Shield	Driver CD
4x COM port cable with bracket	User's manual
2x SATA data cable	

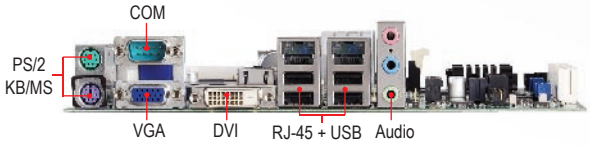
M-321

FlexATX Intel® Core™2 Quad/Duo LGA775 Industrial Motherboard



Features

- FlexATX Motherboard
- Intel® Q45 + ICH10 Chipset supports up to 1333 MHz FSB LGA775 Intel® Core™2 Quad/Duo processor
- Dual-Channel DDR3 800/1066 MHz, up to 8 GB
- Integrated Graphic supports VGA, DVI, LVDS
- One PCI Express® x4 and one PCI slot



Specifications

Processor System

CPU	Intel® Core™2 Quad Q9400, 2.66GHz, 1333MHz FSB, 6MB L2 Cache, 45nm, 95W TDP, LGA775
	Intel® Core™2 Duo E8400, 3.0GHz, 1333MHz FSB, 6MB L2 Cache, 45nm, 65W TDP, LGA775
	Intel® Core™2 Duo E7400, 2.8GHz, 1066MHz FSB, 3MB L2 Cache, 45nm, 65W TDP, LGA775
	Intel® Core™2 Duo E6400, 2.13GHz, 1066MHz FSB, 2MB L2 Cache, 65nm, 65W TDP, LGA775
	Intel® Core™2 Duo E5300, 2.6GHz, 800MHz FSB, 2MB L2 Cache, 45nm, 65W TDP, LGA775
	Intel® Core™2 Duo E4300, 1.8GHz, 800MHz FSB, 2MB L2 Cache, 65nm, 65W TDP, LGA775
	Intel® Pentium® Dual Core E2160, 1.8GHz, 800MHz FSB, 1MB L2 Cache, 65nm, 65W TDP, LGA775
	Intel® Celeron® 440, 2.0GHz, 800MHz FSB, 512KB L2 Cache, 65nm, 35W TDP, LGA775
Chipset	Intel® Q45 + ICH10
Memory	Dual-Channel DDR3 800/1066 MHz, up to 8 GB
TPM	Infineon® SLB9635 TT1.2
BIOS	AMI® BIOS 8Mb flash memory
Watchdog Timer	1-255 sec or 1-255 min software programmable and can generate system reset
Hardware Monitor	CPU/System temperature, fan speed and onboard DC voltages
Operating Systems	Windows® XP/Vista, Fedora™ 8, RedHat™ Enterprise Linux 5.0

I/O Interfaces

Serial ATA	4x Serial ATA II ports with 3.0 Gbps data transfer rate
USB	8x USB 2.0 ports (4x faceplate, 4x onboard pin header)
KB/MS	2x Mini-DIN for PS/2 keyboard/mouse
Serial Port	2x RS-232
Expansion Slot	1x PCIe® x4, 1x PCI™

Audio

Audio Codec	Realtek ALC262 HD codec
Interface	Line-in, Line-out, Mic-in
	Onboard pin header for Line-out

Display

Graphics	Intel® Graphics Media Accelerator 4500
CRT	Up to 2048 x 1536 @ 75 Hz (QXGA)
LVDS	Dual-channel 24-bit LVDS interface, resolution up to UXGA (1600 x 1200)
DVI	DVI-D interface, resolution up to UXGA (1600 x 1200)

Ethernet

Controller	Dual Intel® 82574L PCIe® network controllers
	10/100/1000Base-T dual-Gigabit Ethernet
Interface	PCIe® x1 Bus
Wake On LAN	Yes

Mechanical and Environmental

Form Factor	FlexATX
Dimensions	229 mm x 191 mm (L x W)
Operating Temp.	0°C to 60°C
Storage Temp.	-20°C to 80°C
Certifications	CE, FCC Class A
Relative Humidity	10% to 90%, non-condensed

Ordering Information

Model Number	Description/Configuration
M-321	FlexATX LGA775 Intel® Core™2 Quad/Duo Motherboard

Note 1: CPU, Memory module and Cooler kit are not included.

Optional Accessories

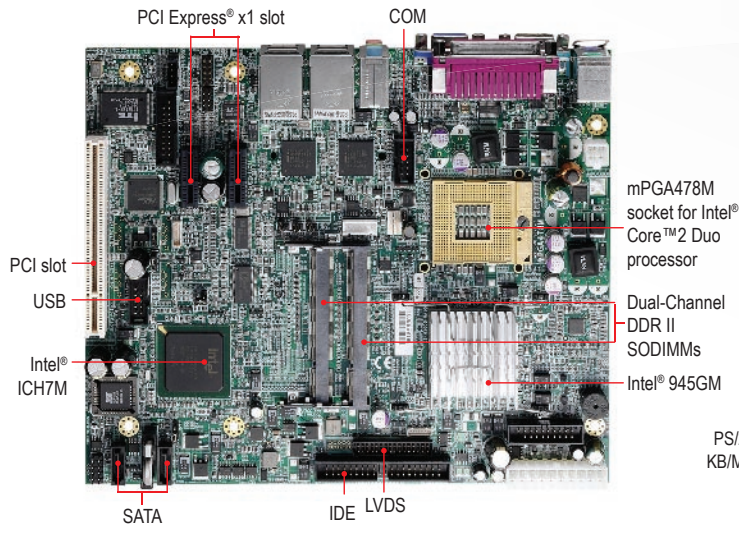
Model Number	Description/Configuration
1U CPU Cooler + backplate	LGA775 1U Thermal Module + backplate
3U CPU Cooler	LGA775 3U Thermal Module
Backplate	LGA775 3U CPU Cooler backplate
Copper-core Cooler	LGA775 copper-core cooler with backplate

Packing List

M-321	1x dual-plug SATA power cable
M-321 I/O Shield	Driver DVD
1x COM port cable	User's manual
2x SATA data cable	

M-885

FlexATX Socket M Intel® Core™2 Duo Industrial Motherboard with DDR2, Dual-GbE, LVDS, and PCIe® x1



Features

- FlexATX Industrial Motherboard
- Socket M Intel® Core™2 Duo, Core™ Duo, Core™ Solo and Celeron® M processor at 667/533 MHz FSB
- Intel® 945GM + ICH7-M chipset with Dual-Channel DDR2 667/533 MHz
- Two Gigabit Ethernet ports via PCIe® x1
- High computing performance with low power consumption

Specifications

Processor System

CPU	Intel® Core™2 Duo Mobile T7400, 2.16GHz, 667MHz FSB, 4MB L2 Cache, 65nm, 34W TDP, PPGA478
	Intel® Core™ Duo Mobile T2500, 2.0GHz, 667MHz FSB, 2MB L2 Cache, 65nm, 31W TDP, PPGA478
	Intel® Celeron® M 530, 1.73GHz, 533MHz FSB, 1MB L2 Cache, 65nm, 31W TDP, PPGA478
	Intel® Celeron® M 440, 1.86GHz, 533MHz FSB, 1MB L2 Cache, 65nm, 27W TDP, PPGA478
Chipset	Intel® 945GM + ICH7-M
Memory	Dual-Channel DDR2 667/533 MHz SODIMM, up to 2 GB
BIOS	Award 4 Mb flash memory
Watchdog Timer	1-255 sec or 1-255 min software programmable and can generate system reset
Hardware Monitor	CPU/System temperature, fan speed and onboard DC voltages
Operating Systems	Windows® XP/Server 2003, Fedora™ Core 5

I/O Interfaces

IDE (PATA)	1x UltraATA-66/100
Serial ATA	2x Serial ATA ports with 3.0 Gbps data transfer rate
Expansion Slot	2x PCIe® x1 slots and 1x PCI™ slot
USB	6x USB 2.0 ports (4x rear panel, 2x onboard pin header)
KB/MS	2x Mini-DIN for PS/2 keyboard/mouse
Floppy	1x Floppy
Parallel Port	1x LPT
Serial Port	2x RS-232

Audio

Audio Codec	Realtek ALC883 AC'97 codec
Interface	AC'97 Audio with Line-In, Line-Out, and Mic-In

Display

Graphics	Intel® 945GM integrated VGA (GMA 950)
VRAM	224MB
CRT	External Dsub-15 connector

Ethernet

Controller	Two onboard Intel® 82573E GbE controllers support 10/100/1000Base-T dual Gigabit Ethernet
Interface	PCIe x1 Bus
Wake On LAN	Yes

Mechanical and Environmental

Form Factor	FlexATX
Dimensions	229 mm x 191 mm (9.6" x 9.6", L x W)
Operating Temp.	0°C to 60°C
Storage Temp.	-20°C to 80°C
Certifications	CE, FCC Class A
Relative Humidity	10% to 90%, non-condensed

Ordering Information

Model Number	Description/Configuration
M-885	FlexATX Socket M Intel® Core™2 Duo Industrial Motherboard with DDR2, Dual-GbE, LVDS, and PCIe® x1

Note: CPU, Memory module and Cooler kit are not included.

Optional Accessories

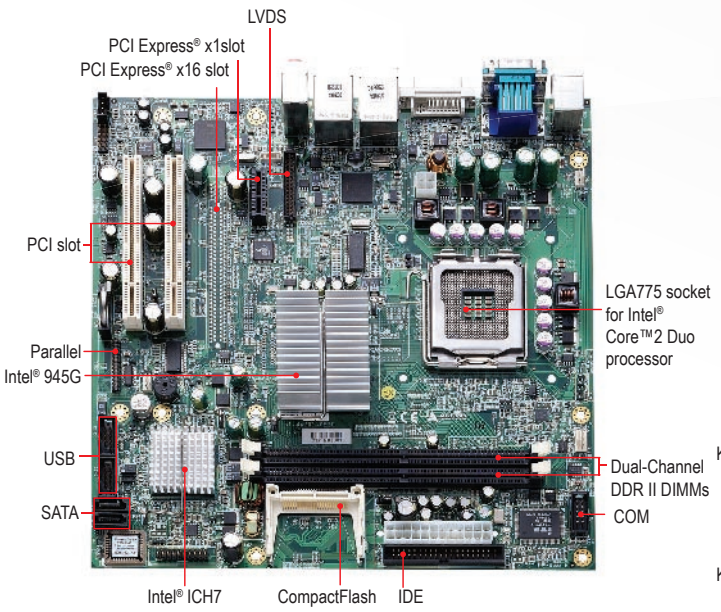
Model Number	Description/Configuration
Socket-M 1U CPU Cooler	1U CPU cooler with backplate

Packing List

- M-885
- M-885 I/O Shield
- 1x UltraATA 100 IDE cable
- 2x SATA data cable
- 1x dual-plug SATA power cable
- Driver CD
- User's manual

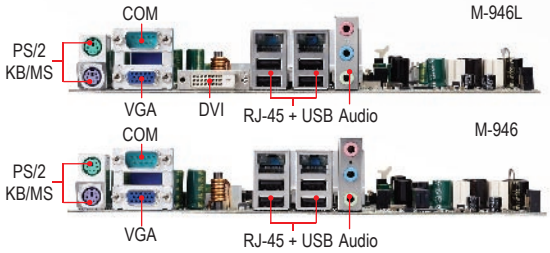
M-946

MicroATX LGA775 Intel® Core™2 Duo Industrial Motherboard with DDR2, Dual-GbE, PCIe® x16, DVI/LVDS, SATA II and CF



Features

- MicroATX industrial motherboard
- LGA775 Intel® Core™2 Duo, Pentium® D, Pentium® 4, Celeron® D processor at 1066/800/533 MHz FSB
- Intel® 945G + ICH7 chipset with Dual-Channel DDR2 667/533 MHz
- Two Gigabit Ethernet ports via PCIe® x1
- Rich display interfaces: VGA, DVI, LVDS, and PCIe® x16 graphics card



Specifications

Processor System

CPU	Intel® Core™2 Duo E6400, 2.13GHz, 1066MHz FSB, 2MB L2 Cache, 65nm, 65W TDP, LGA775
	Intel® Core™2 Duo E4300, 1.8GHz, 800MHz FSB, 2MB L2 Cache, 65nm, 65W TDP, LGA775
	Intel® Pentium® Dual Core E2160, 1.8GHz, 800MHz FSB, 1MB L2 Cache, 65nm, 65W TDP, LGA775
	Intel® Celeron® 440, 2.0GHz, 800MHz FSB, 512KB L2 Cache, 65nm, 35W TDP, LGA775
	Intel® Pentium® 4 651, 3.4GHz, 800MHz FSB, 2MB L2 Cache, 65nm, 95W TDP, LGA775
	Intel® Pentium® 4 551, 3.4GHz, 800MHz FSB, 1MB L2 Cache, 90nm, 84W TDP, LGA775
	Intel® Pentium® 4 531, 3.0GHz, 800MHz FSB, 1MB L2 Cache, 90nm, 84W TDP, LGA775
	Intel® Celeron® D 352, 3.2GHz, 533MHz FSB, 512KB L2 Cache, 65nm, 95W TDP, LGA775
	Intel® Celeron® D 341, 2.93GHz, 533MHz FSB, 256KB L2 Cache, 90nm, 84W TDP, LGA775
Chipset	Intel® 945G + ICH7
Memory	Dual-Channel DDR2 667/533 MHz, up to 2 GB
BIOS	Award 4 Mb flash memory
Watchdog Timer	1-255 sec or 1-255 min software programmable and can generate system reset
Hardware Monitor	CPU/System temperature, fan speed and onboard DC voltages
Operating Systems	Windows® 2000/XP/Server 2003, Fedora™ Core 5

I/O Interfaces

IDE (PATA)	1x UltraATA-66/100
CompactFlash®	1x CompactFlash® type-II socket
Serial ATA	2x Serial ATA II ports with 3.0 Gbps data transfer rate
Expansion Slot	1x PCIe® x1 slot, 1x PCIe® x16 slot, and 2x PCI™ slots
USB	8x USB 2.0 ports (4x rear panel, 4x onboard pin header)
KB/MS	2x Mini-DIN for PS/2 keyboard/mouse
Parallel Port	1x LPT
Serial Port	2x RS-232 ports

Audio

Audio Codec	Realtek ALC655 AC'97 codec
Interface	AC'97 audio with Line-In, Line-Out, and Mic-In

Display

Graphics	Intel® 945G integrated VGA (GMA 950)
VRAM	224MB
CRT	External Dsub-15 connector up to 2048 x 1536 @ 75Hz
LVDS	Dual-channel 24-bit LVDS interface, resolution up to UXGA (1600 x 1200) (optional)
DVI	DVI-D interface, resolution up to UXGA (1600 x 1200) (optional)

Ethernet

Controller	Onboard two Intel® 82573E GbE controllers support 10/100/1000Base-T dual-Gigabit Ethernet
Interface	PCIe® x1 Bus
Wake On LAN	Yes

Mechanical and Environmental

Form Factor	MicroATX
Dimensions	244 mm x 244 mm (L x W)
Operating Temp.	0°C to 60°C
Storage Temp.	-20°C to 80°C
Certifications	CE/FCC Class A
Relative Humidity	10% to 90%, non-condensed

Ordering Information

Model Number	Description/Configuration
M-946	MicroATX LGA775 Intel® Core™2 Duo Industrial Motherboard with DDR2, Dual-GbE, x16 PCIe® and SATA II and CompactFlash®
M-946L	MicroATX LGA775 Intel® Core™2 Duo Industrial Motherboard with DDR2, Dual-GbE, DVI/LVDS, SATA II and CompactFlash®

Optional Accessories

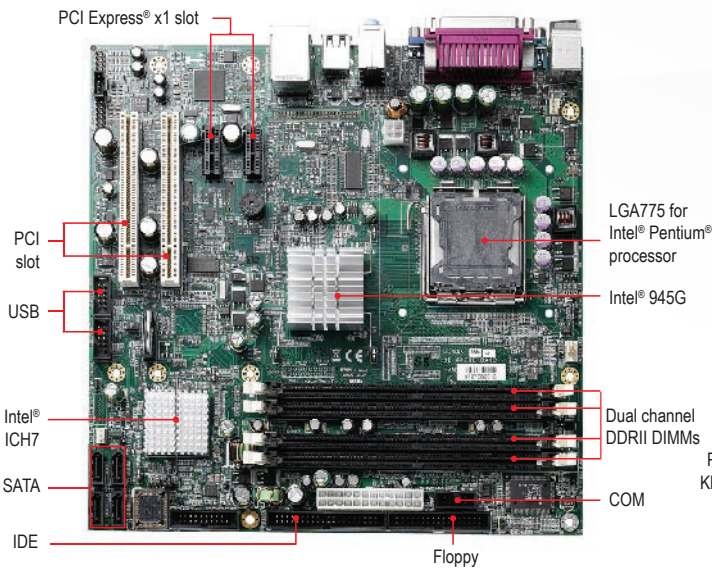
Model Number	Description/Configuration
1U CPU Cooler + backplate	LGA775 1U Thermal Module + backplate
3U CPU Cooler	LGA775 3U Thermal Module
Backplate	Backplate for 3U CPU cooler

Packing List

- M-946
- M-946 I/O Shield
- 1x COM+Parallel port cables with bracket
- 2x SATA data cable
- 1x dual-plug SATA power cable
- Driver CD
- User's manual

M-945

MicroATX LGA775 Intel® Pentium® D Industrial Motherboard with DDR2, GbE, LVDS, and STAT II



Features

- MicroATX Industrial Motherboard
- LGA775 Intel® Pentium® D, Pentium® 4, Celeron® D processor with 1066/800/533 MHz FSB
- Intel® 945G + ICH7 chipset with Dual-Channel DDR2 667/533 MHz
- Gigabit Ethernet port via PCIe® x1
- High capacity memory up to 4 GB

Specifications

Processor System

CPU	Intel® Pentium® 4 651, 3.4GHz, 800MHz FSB, 2MB L2 Cache, 65nm, 95W TDP, LGA775
	Intel® Pentium® 4 551, 3.4GHz, 800MHz FSB, 1MB L2 Cache, 90nm, 84W TDP, LGA775
	Intel® Pentium® 4 531, 3.0GHz, 800MHz FSB, 1MB L2 Cache, 90nm, 84W TDP, LGA775
	Intel® Celeron® D 352, 3.2GHz, 533MHz FSB, 512KB L2 Cache, 65nm, 95W TDP, LGA775
	Intel® Celeron® D 341, 2.93GHz, 533MHz FSB, 256KB L2 Cache, 90nm, 84W TDP, LGA775
Chipset	Intel® 945G + ICH7
Memory	Dual-Channel DDR2 667/533 MHz, up to 4 GB
BIOS	Award 4 Mb flash memory
Watchdog Timer	1-255 sec or 1-255 min software programmable and can generate system reset
Hardware Monitor	CPU/System temperature, fan speed and onboard DC voltages
Operating Systems	Windows® 2000/XP/Server 2003, Fedora™ Core 5

I/O Interfaces

IDE (PATA)	1x UltraATA-66/100
Serial ATA	4x Serial ATA II ports with 3.0 Gbps data transfer rate
Expansion Slot	2x PCIe® x1 slots and 2x PCI™ slots
USB	8x USB 2.0 ports (4x rear panel, 4x onboard pin header)
KB/MS	2x Mini-DIN for PS/2 keyboard/mouse
Floppy	1x Floppy
Parallel Port	1x LPT
Serial Port	2x RS-232 ports

Audio

Audio Codec	Realtek ALC883 AC'97 codec
Interface	AC'97 Audio with Line-in, Line-out, and Mic-in

Display

Graphics	Intel® 945G integrated VGA (GMA 950)
VRAM	224MB
CRT	External Dsub-15 connector up to 2048 x 1536 @ 75Hz

Ethernet

Controller	Intel® 82573E GbE controller supports 10/100/1000Base-T Gigabit Ethernet
Interface	PCIe® x1 Bus
Wake On LAN	Yes

Mechanical and Environmental

Form Factor	MicroATX
Dimensions	244 mm x 244 mm (9.6" x 9.6", L x W)
Operating Temp.	0°C to 60°C
Storage Temp.	-20°C to 80°C
Certificaions	CE, FCC Class A
Relative Humidity	10% to 90%, non-condensed

Ordering Information

Model Number	Description/Configuration
M-945	MicroATX Industrial Motherboard for Intel® Pentium® D LGA775 with DDR II, GbE and Serial ATA II

Note: CPU, Memory module and Cooler kit are not included.

Optional Accessories

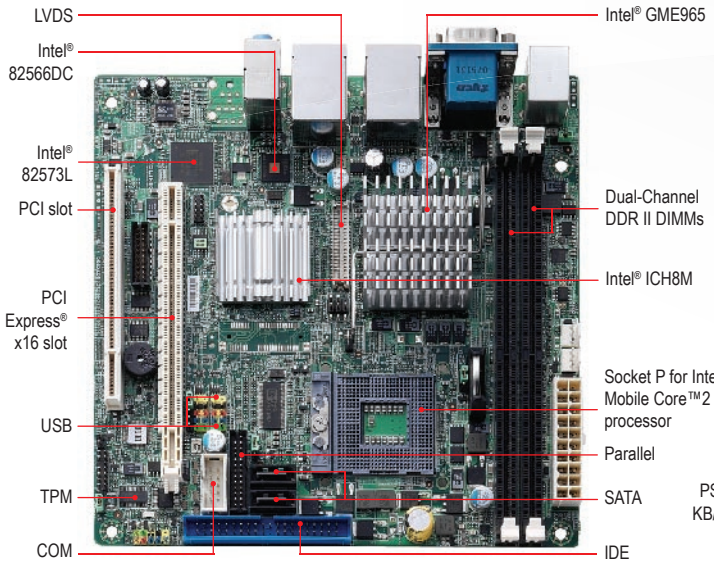
Model Number	Description/Configuration
1U CPU Cooler + backplate	LGA775 1U Thermal Module + backplate
3U CPU Cooler	LGA775 3U Thermal Module
Backplate	Backplate for 3U CPU cooler

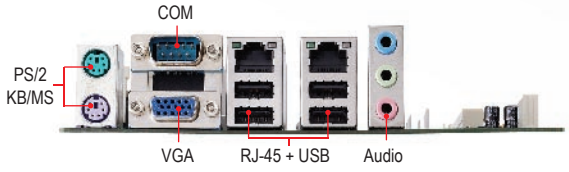
Packing List

M-945	2x SATA data cable
M-945 I/O Shield	1x dual-plug SATA power cable
1x UltraATA 100 IDE cable	Driver CD
1x Floppy cable	User's manual
1x COM+Parallel port cables with bracket	

MI-965

Mini-ITX Embedded Motherboard with Intel® GME965 Chipset, VGA, SATA, IDE, Dual-GbE, LCD, Audio, & CF





Features

- Mini-ITX form factor
- Support Intel® mobile Core™2 Duo, Celeron® M processors in 478-pin micro-FCPGA package
- Integrated graphics controller, support dual independent display
- Supports PCIe® x16, PCI™
- Onboard CompactFlash® socket
- RoHS compliant

Specifications

Processor System

CPU	Intel® Core™2 Duo Mobile T7500, 2.2GHz, FSB 800MHz, 4MB L2 Cache, 65nm, 35W TDP
	Mobile Intel® Celeron® M 550, 2GHz, FSB 533MHz, 1MB L2 Cache, 65nm, 27W TDP
Chipset	Intel® GME965 + ICH8M Express® Chipset
Memory	2x 240-pin DIMM sockets
	Supports DDR2-533/667 SDRAM, up to 4 GB
BIOS	AMI BIOS®/ Flash ROM 16 Mb
Watchdog Timer	1-255 sec./min. software programmable
Hardware Monitor	CPU/System temperature, fan speed and onboard DC voltages
Operating Systems	Windows® XP/Vista, Fedora™ 8

I/O Interfaces

IDE (PATA)	1x 40-pin ATA-66/100 IDE port
CompactFlash®	1x type-II socket, shared with IDE port
Serial ATA	2x Serial ATA II ports, data rate up to 300 MB/s
Expansion Slot	1x PCI Express® x16 slot
	1x PCI™ slot
USB	8x USB 2.0 ports, 4x external and 4x internal ports
KB/MS	2x Mini-DIN for PS/2 keyboard/mouse
Parallel Port	1x LPT
Serial Port	2x RS-232 ports

Audio

Audio Codec	Realtek ALC888 HD codec
Interface	Support HDA Mic-in/Line-in/Line-out

Display

Graphics	GMA X3100 integrated in GME965 GMCH
VRAM	Shared system memory up to 384 MB
CRT	External Dsub-15 connector, resolution up to 2048 x 1536 @ 60 Hz
LVDS	Dual channel 24-bit LVDS

Ethernet

Controller	Intel® 82573L and 82566DC
Interface	PCIe® Bus x1
Wake On LAN	Yes

Mechanical and Environmental

Form Factor	Mini-ITX
Dimensions	170 mm x 170 mm (L x W)
Operating Temp.	0°C to 55°C
Storage Temp.	-20°C to 80°C
Certifications	CE, FCC Class A
Relative Humidity	10% to 90%, non-condensed

Ordering Information

Model Number	Description/Configuration
MI-965	Mini-ITX Mobile Core™2 Duo Industrial Motherboard, GME965/ICH8M, Dual-GbE, SATA, IDE, LCD, Audio, CF

Optional Accessories

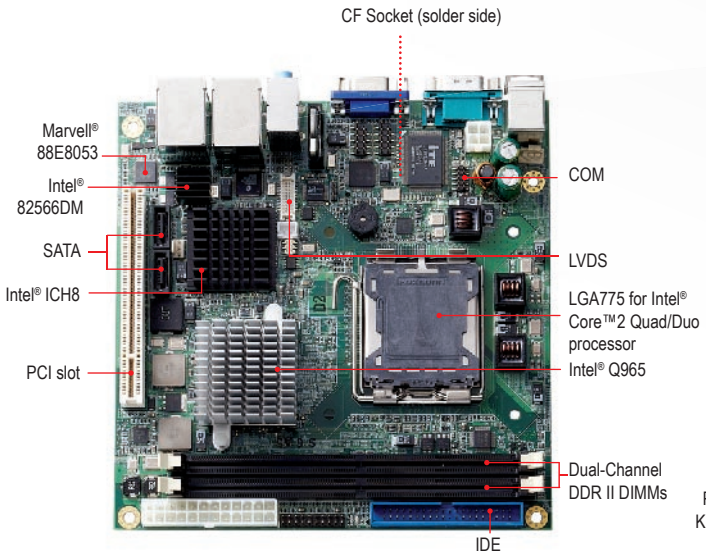
Model Number	Description/Configuration
Socket-M 1U CPU Cooler	1U CPU cooler with backplate

Packing List

MI-965	2x SATA data cable
MI-965 I/O Shield	2x SATA power cable
1x UltraATA 100 IDE cable	Driver CD
1x COM+Parallel port cables with bracket	User's manual

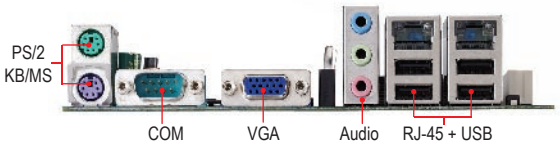
MI-960

Mini-ITX Embedded Motherboard with Intel® Q965 Chipset, VGA, SATA, IDE, Dual-GbE, LVDS, Audio,CF



Features

- Mini-ITX Industrial Motherboard
- Supports Intel® Core™2 Duo, Pentium® D, and Pentium® 4 processors in LGA775 package
- Integrated graphics controller, supports dual-independent display
- Support dual 10/100/1000 Mbps Ethernet
- High Definition Audio codec
- Onboard CompactFlash® socket



Specifications

Processor System

CPU	Intel® Core™2 Duo E6400, 2.13GHz, 1066MHz FSB, 2MB L2 Cache, 65nm, 65W TDP, LGA775
	Intel® Core™2 Duo E4300, 1.8GHz, 800MHz FSB, 2MB L2 Cache, 65nm, 65W TDP, LGA775
	Intel® Pentium® Dual Core E2160, 1.8GHz, 800MHz FSB, 1MB L2 Cache, 65nm, 65W TDP, LGA775
	Intel® Celeron® 440, 2.0GHz, 800MHz FSB, 512KB L2 Cache, 65nm, 35W TDP, LGA775
	Intel® Pentium® 4 651, 3.4GHz, 800MHz FSB, 2MB L2 Cache, 65nm, 95W TDP, LGA775
	Intel® Pentium® 4 551, 3.4GHz, 800MHz FSB, 1MB L2 Cache, 90nm, 84W TDP, LGA775
	Intel® Pentium® 4 531, 3.0GHz, 800MHz FSB, 1MB L2 Cache, 90nm, 84W TDP, LGA775
	Intel® Celeron® D 352, 3.2GHz, 533MHz FSB, 512KB L2 Cache, 65nm, 95W TDP, LGA775
	Intel® Celeron® D 341, 2.93GHz, 533MHz FSB, 256KB L2 Cache, 90nm, 84W TDP, LGA775
Chipset	Intel® Q965 + ICH8 Express® Chipset
Memory	2 x 240-pin DIMM sockets
	Supports up to DDR2-800 SDRAM, up to 4 GB
BIOS	AMI BIOS®/ Flash ROM 16 Mb
Watchdog Timer	1-255 sec./min. software programmable
Hardware Monitor	CPU/System temperature, fan speed and onboard DC voltages
Operating Systems	Windows® XP/Vista, Fedora™ 8

I/O Interfaces

IDE (PATA)	1x UltraATA 66/100/133
CompactFlash®	1x CompactFlash® type II socket
Serial ATA	2x Serial ATA ports with 300 MB/s data transfer rate
Expansion Slot	1x PCI™ slot
USB	8x USB 2.0 ports, 4x external and 4x internal ports
KB/MS	2x PS/2 for keyboard/mouse
Serial Port	2x RS-232 (1x external, 1x internal)

Audio

Audio Codec	Realtek ALC262 HD codec
Interface	Support HDA Mic-in/Line-in/Line-out

Display

Graphics	Integrated in Intel® Q965 GMCH
VRAM	Shared system memory up to 256 MB
CRT	External Dsub-15 connector, resolution up to 2048 x 1536 @ 75 Hz
LVDS	Single channel 24-bit LVDS

Ethernet

Controller	Intel® 82566DM, Marvell 88E8056
Interface	PCIe® Bus x1
Wake On LAN	Yes

Mechanical and Environmental

Form Factor	Mini-ITX
Dimensions	170 mm x 170 mm (L x W)
Operating Temp.	0°C to 55°C
Storage Temp.	-20°C to 80°C
Certifications	CE, FCC Class A
Relative Humidity	10% to 90%, non-condensed

Ordering Information

Model Number	Description/Configuration
MI-960	Mini-ITX Core™2 Duo Industrial Motherboard, Q965/ICH8, Dual-GbE, SATA, IDE, LCD, Audio, & CF

Optional Accessories

Model Number	Description/Configuration
1U CPU Cooler + backplate	LGA775 1U Thermal Module + backplate
3U CPU Cooler	LGA775 3U Thermal Module
Backplate	Backplate for 3U CPU cooler

Packing List

MI-960	2x SATA data cable
MI-960 I/O Shield	1x Dual-plug SATA power cable
1x UltraATA 100 IDE cable	Driver DVD
1x USB 2.0 cable bracket	User's manual
1x COM port cable	